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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,142	02/26/2002	Yuki Kuroiwa	219979US3X	5311

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EXAMINER	
MAYES, MELVIN C	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,142	KUROIWA ET AL.	
	Examiner	Art Unit	
	Melvin Curtis Mayes	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 17-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-26* is/are allowed.

6)☒ Claim(s) *1-6,17,18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

(1)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(2)

Claim 1, 2, 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being obvious over the admitted prior art in view of DE 23 21 401 Abstract and Kuroiwa et al.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or

subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

The admitted prior art discloses that the ordinary melt-blow method of manufacturing a nonwoven fabric has a melt-blow die having a plurality of nozzles aligned in a direction perpendicular to the conveyor (i.e. parallel with the machine direction of the conveyor) and air reservoirs on both sides of each nozzle having highly pressurized air heated to a temperature equal to or higher than the melting point of the resin and communicating with slits to provide high-speed air streams substantially parallel with the direction of extrusion of filaments from the nozzles to attenuate the filaments (pg. 12, lines 9-26). The admitted prior art further discloses that it is considered that the best method for increasing the align-ability of filaments in the transverse direction and the mechanical strength of filaments per se is to stretch the web of filaments in the transverse direction (pg. 3, lines 23-26). The admitted prior art of record does not disclose providing at least one air stream vibrating means for cyclically changing the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction of the conveyor.

DE 23 21 401 Abstract teaches that to ensure that filaments are laid in a homogenous blanket of equal density across its whole width, curved shells are provided on each side of the filament and carrier streams and moved alternately from side to side to deflect the carrier streams on either side of the central line.

Kuroiwa et al. teach that for changing the direction of air stream, at least one of direction of wall surface with respect to the direction of the air stream and distance of the wall surface from the direction of the air stream can be varied (col. 3, lines 1-4)

It would have been obvious to one of ordinary skill in the art to have modified the method of the admitted prior art for manufacturing a nonwoven fabric by providing movable curved shells on each side of the filaments and hot air streams issuing from the nozzles of the melt-blow die, as taught by DE '401, to deflect the streams of hot air and filaments to ensure that the filaments are laid in a homogenous blanket of equal density across its whole width. By providing curved shells on each side of the plurality of nozzles and which are moved alternately from side to side on each side to deflect the carrier streams on either side of the central line of the filaments and air streams, a pair of air stream vibrating means are provided which cyclically change the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction, as claimed. Varying the direction of the curved shells with respect to the air streams in addition to the distance would have been obvious to one of ordinary skill in the art, as taught by Kuroiwa et al.

(3)

Claim 1, 2, 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being obvious over the admitted prior art in view of DE 23 21 401 Abstract.

The admitted prior art discloses that the ordinary melt-blow method of manufacturing a nonwoven fabric has a melt-blow die having a plurality of nozzles aligned in a direction perpendicular to the conveyor (i.e. parallel with the machine direction of the conveyor) and air reservoirs on both sides of each nozzle having highly pressurized air heated to a temperature equal to or higher than the melting point of the resin and communicating with slits to provide high-speed air streams substantially parallel with the direction of extrusion of filaments from the nozzles to attenuate the filaments (pg. 12, lines 9-26). The admitted prior art further discloses

that it is considered that the best method for increasing the align-ability of filaments in the transverse direction and the mechanical strength of filaments per se is to stretch the web of filaments in the transverse direction (pg. 3, lines 23-26). The admitted prior art of record does not disclose providing at least one air stream vibrating means for cyclically changing the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction of the conveyor.

DE 23 21 401 Abstract teaches that to ensure that filaments are laid in a homogenous blanket of equal density across its whole width, curved shells are provided on each side of the filament and carrier streams and moved alternately from side to side to deflect the carrier streams on either side of the central line.

It would have been obvious to one of ordinary skill in the art to have modified the method of the admitted prior art for manufacturing a nonwoven fabric by providing movable curved shells on each side of the filaments and hot air streams issuing from the nozzles of the melt-blow die, as taught by DE '401, to deflect the streams of hot air and filaments to ensure that the filaments are laid in a homogenous blanket of equal density across its whole width. By providing curved shells on each side of the plurality of nozzles and which are moved alternately from side to side on each side to deflect the carrier streams on either side of the central line of the filaments and air streams, a pair of air stream vibrating means are provided which cyclically change the flowing direction of the high-speed air streams to change the movement of the filaments across the machine direction, as claimed. By moving the curved shells alternately from side to side to deflect the carrier streams, the curved shells include a wall surface of which a distance and a direction against the carrier streams (high-speed fluid) cyclically changes, as

claimed, because as each curved shell moves from side to side, its distance from the carrier streams cyclically changes (the claimed limitation that distance against the high-speed fluid cyclically changes) and also the amount of the surface of the curved shell which contacts the carrier streams cyclically changes and thus meets the claimed limitation that wall surface of which "a direction against the high-speed fluid cyclically changes. In other words, as more of the surface (wall surface) of the curved shell contacts the carrier streams, wall surface "direction against" the streams changes because the wall surface is curved with respect to the carrier stream direction.

(4)

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Underwood 3,220,812.

Underwood teaches that in forming and collecting fibers, a gas and fiber confining chamber or enclosure is provided to restrict and control air flow and for adjusting the width of the fibrous mass formed on the conveyor. A portion of the gases and fibers may move upwardly along the walls of the chamber or enclosure and are redirected and eventually collected on the conveyor (col. 4, lines 36-46, col. 7, lines 10-16).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by providing the melt-blow die with a gas and fiber confining chamber or enclosure, as taught by Underwood, to restrict and control air flow and for adjusting the width of the fibrous mass formed on the conveyor. By providing the melt-blow die with a chamber or enclosure, high-speed air is circulated, as claimed, because, as taught by

Underwood, a portion of the gases and fibers may move upwardly along the walls of the chamber or enclosure and are redirected and eventually collected on the conveyor.

(5)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 3 above, and further in view of Kurihara et al. 6,132,661.

Kurihara et al. teach that melted filaments immediately after the extrusion from the nozzles are subjected to positive heating and the temperature of the surrounding atmosphere close to the nozzles is kept at an elevated temperature in order to maintain the filaments in a state to be draftable. As a means to raise the surrounding temperature, any means such as heating with a heater can be used (col. 4, lines 10-40).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by providing a heater to blow hot air to the filaments and air streams issuing from the nozzles, as taught by Kurihara et al., to subject the filaments to positive heating and keep the temperature of the surrounding atmosphere close to the nozzles at an elevated temperature in order to maintain the filaments in a state to be draftable.

(6)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of either Weber et al. 3,959,421 or Kurihara et al. 6,132,661.

Weber et al. teach that in making a nonwoven fabric by melt blowing, fibers in the gas stream are rapidly quenched by spraying a liquid into the gas stream near the die tip to permit a

high quality fibrous web to be formed at significantly faster production rates without leading to excessive formation of "shot" or non-fibrous polymer in the final web (col. 2, lines 31-38)

Kurihara et al. teach that in making a nonwoven fabric by a melt-blowing die, an aqueous spray is used to rapidly cool the melted filaments so as to attain the appropriate stretching and higher strength and to avoid sticking of the web to the conveyor surface (col. 5, lines 54-60).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by spraying a liquid on the filaments and hot air streams issuing from the nozzles, as taught by Weber et al., to rapidly quench the filaments, thus permitting a high quality fibrous web to be formed at significantly faster production rates without leading to excessive formation of "shot" or non-fibrous polymer in the final web or, as taught by Kurihara et al., to attain the appropriate stretching and higher strength and to avoid sticking of the web to the conveyor surface.

Response to Arguments

(7)

With respect to the rejection based in part on Kuroiwa et al., Applicant states that the reference and the applicant have the same assignee as evidenced by recorded Assignment. The fact that the reference and the application have the same assignee is not, by itself, sufficient evidence to disqualify the prior art under 35 USC 103(c). There must be a statement that the common ownership was "at the time the invention was made." See MPEP 706.02(l)(1), 706.02(l)(2).

Applicant transverse the Examiner's claim interpretation of the language of amended Claim 1, the language being "a wall surface of which a distance and a direction **against** the high-speed fluid cyclically changes." The Examiner interpreted the language to mean that the distance of the wall surface from the fluid changes and the direction of the wall surface **with respect to** the fluid changes. The language of Kuroiwa et al. 6,524,521 is that "at least one of the direction of the wall surface **with respect to** the direction of the high-speed air stream and the distance of the wall surface from the direction of the high-speed air stream" is variable.

In Applicants Remarks/Arguments filed 7/19/04, Applicant describes an embodiment for the language in which not only the distance between the surface of the rod-like body and the air stream changes but "[A]dditionally, a direction...of the surface..**with respect to** the air stream axis 9 changes..." and also states that DE '401 Abstract "does not teach or suggest that the curved shells 1, 2 include a wall surface of which a distance and a direction **with respect to** the high speed fluid cyclically changes, as claimed by Applicants." The Examiner was merely reiterating Applicants own argued interpretation of the claim language that the direction of the wall surface changes "with respect to" the fluid. Now, however, Applicant transverses his own argued interpretation of the claim language.

Thus the claimed language "**direction against** the high-speed fluid cyclically changes" is now given its broadest reasonable interpretation and is not limited to the wall surface direction **with respect to** the fluid (i.e. direction of the fluid) changing, as initially argued by Applicant but now traversed. As set forth in the rejection, as each curved shell of DE '401 Abstract moves from side to side, not only does its distance from the carrier streams cyclically change (the claimed limitation that distance against the high-speed fluid cyclically changes) and but also the

amount of the surface of the curved shell which contacts the carrier streams cyclically changes, and as more of the surface (wall surface) of the curved shell contacts the carrier streams, wall surface "direction against" the streams changes because the wall surface is curved with respect to the carrier stream direction.

If Applicant intends to claim that "a wall surface of which a distance and a direction with respect to the direction of the high-speed fluid cyclically changes," as initially argued, then Claim 1 should be clearly amended as such and the new language added to the specification to provide antecedent basis for the claim language. While in a general sense, the specification describes changing the distance of the wall surface from the fluid, there is no language related to the wall surface direction with respect to the fluid direction changing, language clearly provided in Kuroiwa et al. 6,524,521.

Allowable Subject Matter

(8)

Claims 19-26 are allowed.

Conclusion

(9)

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

(10)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM
March 1, 2005